UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/847,660	05/03/2001	Winston K. Mok	16337.990	7077

7590	02/12/2004

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EXAMINER
THAI, XUAN MARIAN

ART UNIT	PAPER NUMBER
2111	5

DATE MAILED: 02/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
	09/847,660	MOK ET AL.
Office Action Summary	Examiner	Art Unit
	XUAN M. THAI	2111

-- Th MAILING DATE of this communication appears on the cover she t with th correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>03 May 2001</u>.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-18</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) <u>1-9 and 11-16</u> is/are rejected.
7) ☒ Claim(s) <u>10,17 and 18</u> is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☐ All   b) ☐ Some * c) ☐ None of:
        1. ☐ Certified copies of the priority documents have been received.
        2. ☐ Certified copies of the priority documents have been received in Application No. _____.
        3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
           application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date <u>4</u>.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1.   This is in response to communication filed on May 3, 2001. Claims 1-18 are presented

for examination.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

3.   Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing

to particularly point out and distinctly claim the subject matter which applicant regards as the

invention.

Claim 9 recites the limitation " the E1 and B1 bytes " in lines 1-2. There is insufficient

antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

5.   This application currently names joint inventors. In considering patentability of the

claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c)

and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6.   Claims 1, 3-8, 11, and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Tayloe et al. (USPN 6,157,638; Tayloe) in view of Widmer et al. ("A DC-Balanced,

Partitioned-Block, 8B/10B Transmission Code"; Widmer).

As per claims 1, 3, 11 and 13; Tayloe teaches a high density packet switch with high

speed interfaces comprising transmit and receiver including conversion means for converting

SONET/SDH signal streams to low voltage differential signal and vice versa (Fig. 1; col. 3,

lines 1-22; col. 4, lines 61-67). Tayloe, however, is silent as to using 8B/10B transmission

coding.

Widner teaches that it is known at the time of the invention was made that 8B/10B

transmission coding is a desirable in a high-speed transmission environment such as that of

Tayloe (e.g. page 440). It would have been obvious to one of ordinary skill in the art of high-

speed data transmission art to incorporate the teachings of Widner in the system of Tayloe to

yield the invention as claimed, in that Widner states that such transmission code would provide

a DC-balanced regardless of data patterns. Additionally, Widner states that such coding would

simplify circuitry and error control as well as buffer design in gateways, address expansion, and

clock design. Widner further states that such coding would yield a near-optimum combination

of relevant properties such as coding efficiency, complexity, digital sum variation, run length, error propagation, and suitability of ring or point-to-point topologies (page 450).

As per claim 4, Widner teaches including treating positive and negative disparity codes of said 8B/10B control characters having an even number of ones and zeros as separate control characters (see pages 443 and 446).

As per claims 5 and 14, the combination of Tayloe and Widner teaches the invention including storing signals in a buffer and transferring said signals using a universal frame pulse with a software programmable delay to allow transfer of one or more SONET/SDH signals over multiple links (see Tayloe: elements 140 and 180; fig. 1; see also col. 3; see Widner: page 449-450).

As per claim 6, Widner teaches error checking (see pages 447-448).

As per claims 7 and 15, Widner teaches a pseudo-random bit sequence pattern (see pages 442-443).

As per claims 8 and 16, Widner teaches line code violations of 8B/10B characters to monitor error performance (see page 447).

7.   Claims 1-8 and 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. (USPN 6,498,792; Johnson) in view of Widmer et al. ("A DC-Balanced, Partitioned-Block, 8B/10B Transmission Code"; Widmer).

As per claims 1, 3, 11 and 13; Johnson teaches a high density packet switch with high speed interfaces comprising transmit and receiver including conversion means for converting SONET/SDH signal streams to low voltage differential signal and vice versa (Fig. 1; col. 3,

lines 1-67; col. 4, lines 1-67 and col. 6, lines 20-37). Johnson, however, is silent as to using

8B/10B transmission coding.

Widner teaches that it is known at the time of the invention was made that 8B/10B

transmission coding is a desirable in a high-speed transmission environment such as that of

Johnson (e.g. page 440). It would have been obvious to one of ordinary skill in the art of high-

speed data transmission art to incorporate the teachings of Widner in the system of Johnson to

yield the invention as claimed, in that Widner states that such transmission code would provide

a DC-balanced regardless of data patterns. Additionally, Widner states that such coding would

simplify circuitry and error control as well as buffer design in gateways, address expansion, and

clock design. Widner further states that such coding would yield a near-optimum combination

of relevant properties such as coding efficiency, complexity, digital sum variation, run length,

error propagation, and suitability of ring or point-to-point topologies (page 450).

As per claim 4, Widner teaches including treating positive and negative

disparity codes of said 8B/10B control characters having an even number of ones

and zeros as separate control characters (see pages 443 and 446).

As per claims 2 and 12, the combination of Johnson and Widner teaches SONET/SDH

frame boundaries include transport frame, high-order path frame and low-order path frame

boundaries (e.g. see Johnson col. 1, lines 47-54 and Widner page 448).

As per claims 5 and 14, the combination of Johnson and Widner teaches the invention

including storing signals in a buffer and transferring said signals using a universal frame pulse

with a software programmable delay to allow transfer of one or more SONET/SDH signals over

multiple links (see Widner: page 449-450).

As per claim 6, Widner teaches error checking (see pages 447-448).

As per claims 7 and 15, Widner teaches a pseudo-random bit sequence pattern (see pages 442-443).

As per claims 8 and 16, Widner teaches line code violations of 8B/10B characters to monitor error performance (see page 447).

Allowable Subject Matter

8.   Claims 9-10 and 17-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The claims are drawn to overwriting of E1 and B1 bytes to form a pattern which allows in-service monitoring of link functionality as well as monitoring of downstream cross-connect mis-configurations and wherein bytes in E1 are overwritten with a complement of a value in B1 bytes.   Prior art do not teach the above limitations.

Conclusion

9.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See attached form PTO-892 for various prior art that also teach SONET/SDH and LVDS signaling e.g. Gradl et al. (USPN 6381269), Brolin et al. (USPN 6359859), Cardona et al. (USPN 6317439), Bottorff et al. (US 20010014104), Takemura et al. (USPN 6671271), Tayloe et al., and Lawrence et al. (USPN 6208666). Additionally, the following prior art teach the use

of 8B/10B coding in the SONET environment: Blanc et al. (USPN 6480501), Goodman et al.

(USPN 6636529), and Kenny (USPN 6654565).

10.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to XUAN M. THAI whose telephone number is 703-308-2064. The

examiner can normally be reached on Monday to Friday from 8:30 A.M. to 5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mark Rinehart can be reached on 703-305-4815. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

XUAN M. THAI
Primary Examiner
Art Unit 2111

XMT
February 9, 2004